

Diwu *et al.*
Serial No. 10/713,670

Docket No. MP0067.1CIP

REMARKS

The Claimed Invention

The claimed invention is directed to xanthene derivative dye compounds that include additional fused rings and precursors useful for synthesizing such dye compounds. The compounds may be present in a form containing a chemical reactive group, or attached to a biological compound or present as an un-reactive dye compound. These dye compounds, in their various forms, are used to stain or label a biological sample wherein the fluorescent compounds provide a detectable signal that identifies the biological sample.

The Pending Claims

Prior to entry of the attached amendments, Claims 1-30 are pending. Claims 1-10 are directed to precursor compounds that are useful for synthesizing dihydrodihydroxyquinoline compounds of the invention. Claims 11-14 are directed to dihydrodihydroxyquinoline compounds that are synthesized by the combination of the precursor compounds from Claims 1-10 and an additional precursor. Claims 15-20 are directed to derivatives of xanthene or oxazine compounds synthesized using the precursor compounds from Claims 1-10. Claim 21 is a derivative of seminaphthorhodafluor synthesized using the precursor compounds of Claims 1-10. Claims 22-30 are directed to rhodamine derivatives synthesized using precursor compounds of Claims 1-10.

The Office Action

Claims 11-30 are allowed, Claims 1 and 7-10 are rejected and Claims 2-6 are objected to.

Claims 1, and 7-10 stand rejected under 35 U.S.C. 102(b) as being unpatentable over Lee et al. US Patent No. 6,080,852.

Claims 1 and 7-10 stand rejected under 35 U.S.C. 102(b) as being unpatentable over Kidwai et al Chemical Abstracts 115:29162 (1991).

Claims 1 and 7-10 stand rejected under 35 U.S.C. 102(b) as being unpatentable over Hahn et al. Chemical Abstract 66:75925 (1967).

Claims 2 and 6 are objected to as being dependent upon a rejected base claim.

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Amendments

Claims 1 and 2 have been amended.

Claim 1 and 2 has been amended to clarify that E, E', X or X' do not represent $CR^1=CR^2$.

Claim 1 has been amended to add the proviso "with the proviso that when R^1 and R^2 form a fused aromatic ring, R^a is not hydrogen or a C_2 alkyl substituted by carboxylic acid".

Applicants believe that no new matter has been added by any of these amendments and the Examiner is respectfully requested to enter them.

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RESPONSE TO THE REJECTIONS

In the response that follows, the Examiner's individual rejections are provided in full text, as identified by indented small bold print, followed by the Applicant's response.

35 U.S.C. 102(b) Rejection

Claims 1 and 7 to 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Lee et al. (US 6080852), cited.

The reference discloses the claimed compound wherein one of E and X is CH=CH and the other is absent, Z is OH, R5 is methyl and R'-R4, R6, R7 and Y are hydrogen. Note the compound in column 21, lines 30 to 41, left-hand side.

Applicants have amended Claim 1 and 2 wherein E, E', X or X' no longer represent "CR¹=CR²". The substituents, E, E', X or X' are only permitted to represent the heteroatoms, O, S or N wherein the claim limitations result in a five-membered ring. The '852 patent only discloses that the corresponding ring structure comprise carbon ring atoms, not heteroatoms such as O, S or N, or that the corresponding ring be 5-membered instead of 6-membered. Therefore, due the structural differences of the presently claimed compounds, Applicants respectfully assert that the presently claimed compounds do not fall within the scope of the '830 patent.

Applicants believe the Claim amendment to Claim 1 and 2 renders the present rejection moot and respectfully request that the Examiner withdraw the rejection.

Claims 1 and 7 to 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Kidwai et al. (Chemical Abstracts, 115:29162, 1991), cited.

The reference discloses the claimed compound where X is NH, E is absent, R' and R2 form a fused aromatic ring, R5 is methyl and R3, R4, R6, R7, Y and Z are hydrogen. Note the abstract and Registry Number 121113-05-1.

Applicants have amended Claim 1 to include the proviso wherein when R¹ and R² form a fused aromatic ring R⁸ is not permitted to be hydrogen. Applicants believe this amendment to the claims renders the present rejection moot and respectfully request that the Examiner withdraw the rejection.

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Claims 1 and 7 to 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Hahn et al. (Chemical Abstracts, 66:75925, 1967), cited.

The reference discloses the claimed compounds where X is NR⁸ where R⁸ is hydrogen or C₂-alkyl that is substituted by carboxylic acid, E is absent, R' and R² form a fused aromatic ring and R³-R⁷, Y and z are hydrogen. Note the abstract and Registry Numbers 13624-03-8 and 13799-48-9.

Applicants have amended Claim 1 to include the proviso wherein when R¹ and R² form a fused aromatic ring R⁸ is not permitted to be a C₂ alkyl substituted by carboxylic acid. Applicants believe this amendment to the claims renders the present rejection moot and respectfully request that the Examiner withdraw the rejection.

RESPONSE TO THE OBJECTIONS

In the response that follows, the Examiner's individual objections are provided in full text, as identified by indented small bold print, followed by the Applicant's response.

Claims 2 to 6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicants believe the amendment to Claims 1 and 2 render this present objection moot and have chosen not to amend Claims 2-6 at this time. The Examiner is respectfully requested to withdraw this objection.

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CONCLUSION

In view of the above remarks, it is submitted that this application is now ready for allowance. Early notice to this effect is solicited. If, in the opinion of the Examiner, a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned at (541) 335-0203.

Respectfully submitted,

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